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**FODOR Éva**[1]

# What Could be the Growth Impact of the Funding for Growth Scheme?

The National Bank of Hungary (NBH) launched its 'Funding for Growth Scheme' (FGS) in June 2013. The successfulness of FGS could have a crucial impact on the funding and through that the operation of small and medium sized enterprises (SME). Therefore it is also the main topic of several economic discussions nowadays. The program was launched in an environment which has been characterized by the continuous decline in total loans outstanding in the SME segment along with increasing share of nonperforming loans and further tightening of banks' lending rules.

The goal of this study is to introduce the development of SME lending in Hungary as well as to examine the 'Funding for Growth Scheme', related capital market expectations and the program's possible impact on the economic performance of Hungary. However, all conclusions of this study are based solely on statistical calculations. I do not intend to make any judgment about the program in general taking into account that the impact of FGS on some other macroeconomic factors and capital market participants, with impact on GDP directly or indirectly (i.e. labour market, the banking sector's profitability), is not subject of this study.

*Keywords: SMEs, NBH, funding for growth scheme*
*JEL Codes: G00, G30*

# Milyen hatással lehet a Növekedési Hitelprogram a növekedésre?

A Magyar Nemzeti Bank 2013 júniusában indította el Növekedési Hitelprogramját. A program sikeressége döntő jelentőségű lehet a kis- és középvállalkozások (KKV) finanszírozása és működése szempontjából. Emiatt számos közgazdasági vita központi témája napjainkban. A programot olyan hitelezési környezetben indították el, melyre a KKV hitelportfolió folyamatos zsugorodása, a nem teljesítő hitelek arányának növekedése és a szigorodó hitelezési korlátok jellemzőek.

A dolgozat célja a KKV hitelezés alakulásának bemutatása Magyarországon, valamint a Növekedési Hitelprogram, az ezzel kapcsolatos tőkepiaci várakozások és annak vizsgálata, hogy a programnak milyen lehetséges hatásai lehetnek Magyarország gazdasági teljesítményére. A programmal kapcsolatban megfogalmazott következtetések kizárólag statisztikai számítások eredményein alapulnak. A tanulmánynak ugyanakkor nem célja véleményt mondani a programról, figyelembe véve, hogy a dolgozat nem tárgyalja a Növekedési Hitelprogram egyéb makrogazdasági tényezőre és tőkepiaci szereplőre –melyek a GDP-t közvetlenül vagy közvetve befolyásolják (pl. munkaerőpiac, bankszektor jövedelmezősége)- gyakorolt hatását.

*Kulcsszavak: KKV, MNB, Növekedési Hitelprogram*
*JEL kódok: G00, G30*

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## Introduction

In the first part of the study I present the role and weight of SMEs in the Hungarian economy which makes clear the importance of this topic. Thereafter I draw up the main specifics of SME lending which highlight those developments which led the NBH to act. In the second part I introduce the 'Funding for Growth Scheme' itself and look over the first reactions of the capital market.

Correlation and regression calculations are presented in the third part, after the review of base data and methodology. The aim of this statistical investigation is to examine the potential economic impact of the two main strategic goals of FGS. On one hand NBH intends to increase the amount of total loans outstanding in the SME sector on the other hand they want to decrease the funding cost of SMEs through lower interest rate on loans. Finally, the study will be closed with the final conclusions.

## Definition of small and medium sized enterprises

In Hungary the definition of small and medium sized enterprises is regulated by the Act XXXIV of 2004. This law took into consideration also the related recommendations of the European Commission. The law is effective as of the 1st of January, 2005. Accordingly, the most important criteria for SMEs are the followings:

An enterprise is considered as a 'small and medium sized enterprise' when it has

a) less employees that 250 people and
b) its net revenue in a year is not more than EUR 50 million in HUF terms or its balance sheet total is not more than EUR 43 million in HUF terms.

Within the SME category an enterprise is considered as 'small enterprise' when it has

a) less employees that 50 people and
b) its net revenue in a year or its balance sheet total is not more than EUR 10 million in HUF terms.

Within the SME category an enterprise is considered as 'micro enterprise' when it has

a) less employees that 10 people and
b) its net revenue in a year or its balance sheet total is not more than EUR 2 million in HUF terms.

An enterprise cannot be considered as SME in which the state or any local council has directly or indirectly more than 25% ownership (separately or together) through equity or voting rights (Act XXXIV of 2004, 3§).

The statistical demarcation is based on the number of employees according to which any enterprises with employees between 0 and 249 people can be considered as small and medium sized enterprises.

## The role of SMEs in Hungarian economy

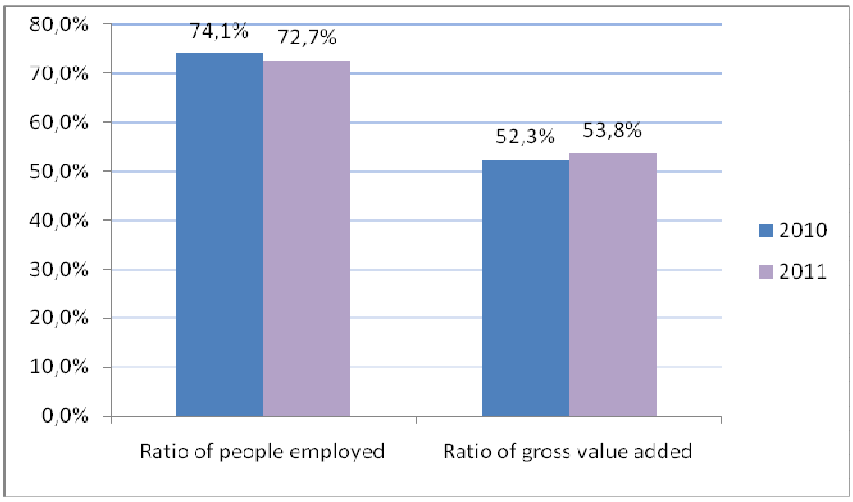
The Hungarian corporate sector's mix in terms of size does not show major deviation from the average of the European Union. In 2011 94.8% of all operating enterprises were micro enterprises while micro, small and medium sized enterprises together amounted to more than 99% of the total corporate sector *(Table 1)*.

**Table 1: Distribution of enterprises in terms of employees (2011)**

| Distribution of enterprises (by enterprises size) | | | |
|---|---|---|---|
| | Hungary | | EU |
| | Number | Ratio | Ratio |
| ***SMEs*** | 572 884 | 99,9% | 99,8% |
| ***Micro (1-9)*** | 543 773 | 94,8% | 92,2% |
| ***Small (10-49)*** | 24 854 | 4,3% | 6,5% |
| ***Medium (50-249)*** | 4 257 | 0,7% | 1,1% |
| ***Large (250+)*** | 805 | 0,1% | 1,2% |
| ***All enterprises*** | 573 689 | 100,0% | 100,0% |

*Source:* Own editing based on Vállalkozáspolitikai és Ipari Főigazgatóság (2012)

As it is shown the SME sector has a crucial role in the Hungarian economy despite the fact that its productivity and competitiveness lags behind that of the large corporate sector.




**Graph 1: Main indicators of SMEs (2010-2011)**

Source: Own editing based on Vállalkozáspolitikai és Ipari Főigazgatóság (2012)

According to Cambridge Econometrics' estimates the number of people employed in the corporate sector declined by 1.4% in 2011 compared to the previous year. However, the role of SMEs on the labour market is persistently important. In 2011 the whole corporate sector employed 2,460k people out of which 1,789k worked in the SME sector representing a share of 72.7%. In 2010 their contribution was pretty similar with 74.1%.

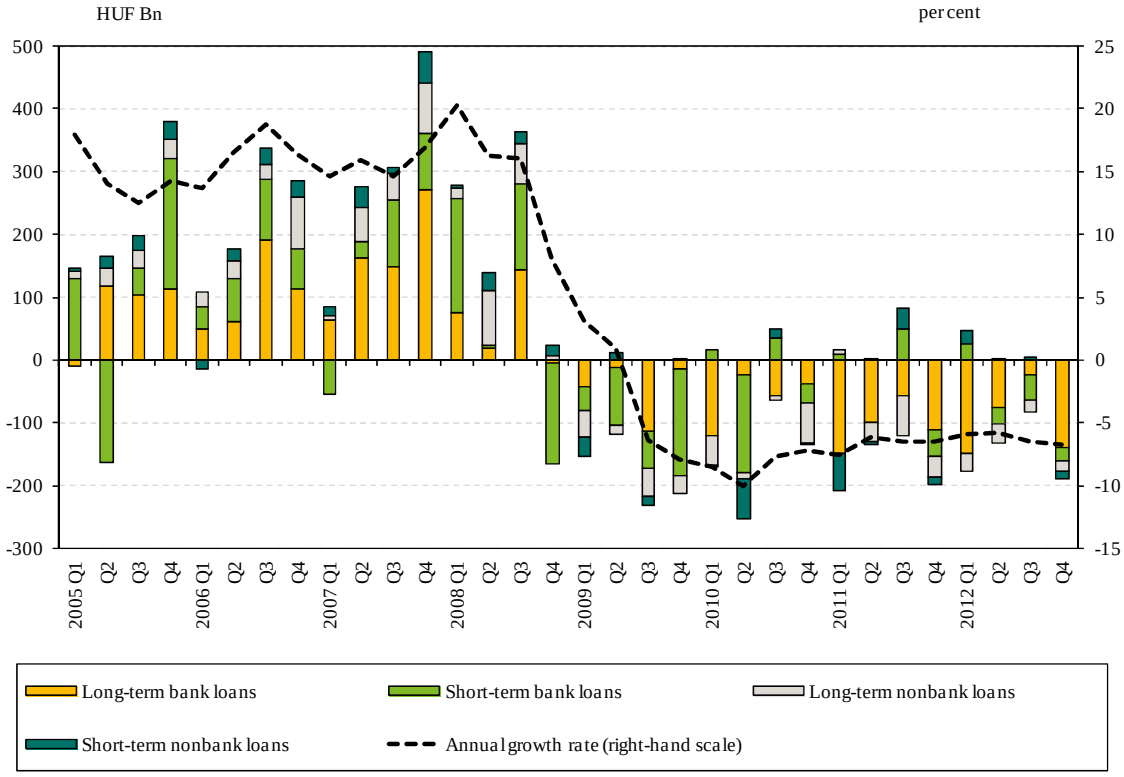
SMEs have crucial importance not solely on the labour market but they have noteworthy contribution to the Gross Domestic Product (GDP) as well, simply due to their large number *(Graph 1)*. In 2010 and 2011 on average 53% of the whole corporate sector's contribution to the Gross Domestic Product were attributable to the SME sector. Going into more details, roughly one third were attributable to micro and small enterprises, one fifth to medium sized enterprises while almost 50% of the whole corporate sector's contribution was attributable to the large corporate sector.

The latest available data related to SME sector's net revenue and export sales are dated from 2009 and 2010, however, it may haven't changed considerably since then. The SME sector's total contribution to the whole corporate sector's net revenue line is even higher than its contribution to the GDP owing to its more various forms of activities. SME sector delivered 60.8% and 58.7% of the whole corporate sector's total net revenue in 2009 and 2010, respectively. SMEs booked almost HUF 41,600 billion net revenue in both years.

In terms of export sales SME sector's contribution was lower in comparison to previous benchmarks since large corporate sector gave more than 70% of total export sales. SMEs had 26.4% and 25.2% share in 2009 and 2010, respectively.

### Development of loans outstanding in the SME sector

The Hungarian banking sector's lending activity dropped significantly since the outbreak of the world wide economic crisis in 2008 (*see Graph 2*). First of all the total amount of long terms loan dropped, however, in 2012 one could see a decline in the short term loans as well.




**Graph 2: Annual growth rate and net increase of loans to non-financial corporate sector by *maturities***

*Source: Report on Financial stability, MNB (May, 2013)*

Though the contraction of corporate lending is attributable to demand side factors in a noteworthy part, especially considering many postponed corporate investments reflecting the weak economic outlook, supply side factors had at least the same magnitude of impact first of all considering the stricter and stricter lending standards of banks.

As a result of declining risk appetite as well as the withdrawal of external (foreign) funds from the banking system the corporate sector faced much tougher lending rules than before the crisis. Moreover, according to the latest NBH estimates the lower lending activity of banks had the most severe impact on the SME sector (*MNB, 2013*).

**Table 2: Change in new lending to corporations and its decomposition by corporate size**

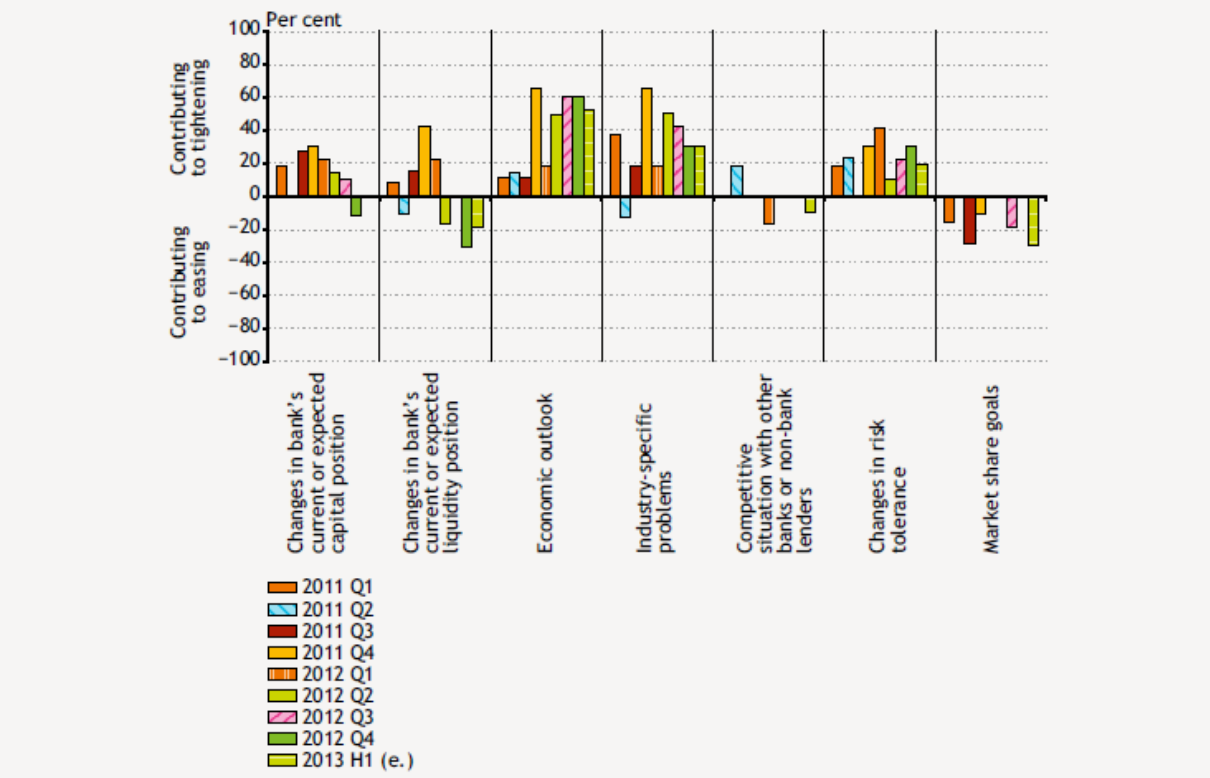
| | Volume of new lendings (HUF Bn) | | Change from 2007 to 2011 (per cent) | | |
|---|---|---|---|---|---|
| | 2007 | 2011 | Total | Demand effect | Supply effect |
| ***Micro*** | 1 730 | 828 | ( 52.2) | ( 61.7) | 9.5 |
| ***Small*** | 1 120 | 999 | ( 10.8) | 28.5 | ( 39.3) |
| ***Medium*** | 1 160 | 785 | ( 32.4) | ( 4.7) | ( 27.7) |
| ***Large*** | 1 460 | 1 250 | ( 14.4) | ( 49.3) | 34.9 |
| ***Total corporate sector*** | 5 740 | 3 862 | ( 29.5) | ( 14.3) | ( 15.2) |

*Source*: Report on Financial stability, MNB (May, 2013)

## Loan conditions

Based on the pricing of transactions carried out since 2010 corporate loans' risk premium over interbank rates were at 250 basis points, both in case of HUF and EUR denominated transactions. However, interest rate costs aggregated on sector level do not provide a comprehensive picture about real interest rate conditions many enterprises face. On one hand bigger entities are overrepresented in this average approach, on the other hand due to many non-pricing based restrictions in the banks' lending process only limited number of enterprises have access to the funding sources at all. Moreover, according to another NBH survey (2011 Q2) aforementioned 250 bps risk premium is only achievable for those enterprises which belong to the top two categories in terms of credit rating.

Banks tightened further their lending conditions in 2012 which resulted in increasing risk premium on risky loans as well as in increasing risk premium over its funding costs. Beyond that contractual commitments as well as collateral requirements became stricter. As you can see on *Graph 3* tighter lending conditions are mostly attributable to negative changes in the economic outlook along with cited industry specific problems. However, unfavourable change in risk tolerance affected lending policies also in a negative way. Only market share goals may have supported some easing in the banks' lending conditions, according to NBH's Senior loan officer surveys on bank lending practices (*NBH, 2013*).

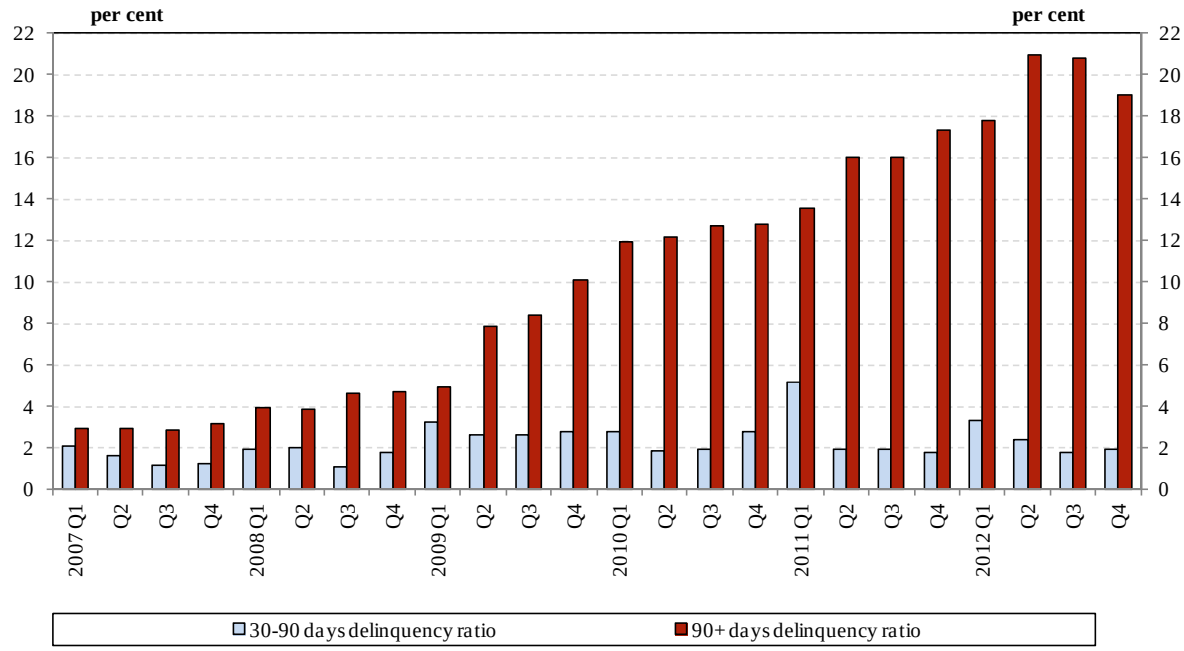



**Graph 3: Factors contributing to changes in credit conditions on corporate loans**
(net percentage balance of banks indicating a contribution of individual factors to tightening or easing weighted by market share)
*Source*: Senior loan officer survey on bank lending practices, MNB (February, 2013)

According to the Corporate Banking Monitor survey of GFK Hungary since the year of 2007 the number of enterprises has decreased continuously which believe in a favourable decision about their credit applications. In 2007 only 7.5% of corporate executives opined that their credit application would be declined by the banks during the credit rating process. However, their share jumped to 17.1% by 2010 while it stood already at 19% in 2012.

### Development of non-performing loans

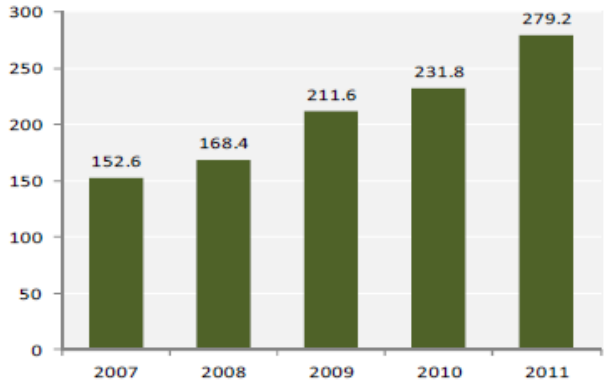
The share of non-performing loans (NPL) jumped to 21% by 2012 from pre crisis level of 3-4% *(Graph 4)*. The share of 90+ days overdue loans stood at 19.1% at the end of 2012. Similar to households the very high share of FX denominated loans in the SME sector (53% out of total) had a severe impact on portfolio quality, beyond the weak economic environment. It is worth mentioning that the (re)default of already restructured loans also contributed to the increase of non-performing loans.




**Graph 4: Share of non-performing corporate loans of the banking sector**
*Source*: Report on Financial stability, NBH (May, 2013)

## Other indicators

According to one of OECD's latest surveys payment overdue in the corporate sector increased to 19 days from 15 days in 2011 in comparison to 2010 while corporate defaults increased by 17% in this period *(see Graph 5).*




**Graph 5: Numbers of bankrupt corporates, 2007-2011 (annual, per 10k enterprises)**
*Source*: Financing SMEs and Entrepreneurs 2013: An OECD Scoreboard Final Report

## Responses of the government

The Hungarian government's economic policy has tried to support the SME sector especially considering their initiations to decline the sector's funding costs. These measures include non-refundable transfers, loan guaranties as well as increasing number of loan programs coordinated by some state authorities.

Programs which provide *non refundable transfers* or *interest rate subsidy* are usually linked to well defined economic policy goals. Supporting corporate investments aim to improve competitiveness, create jobs or decrease the pollution of the environment have top priorities within these programs. It is worth to mention that in the frame of the New Széchenyi

Plan one could apply for EU funds as well which could serve as part of their own contribution.

*Guarantee funds* established by the state aim to provide support to that SMEs which do not have enough own equity, however, would meet all other criteria. As these funds have taken over some part of lending risk from banks the financial institutions' willingness to finance SMEs has increased parallel. The most popular and well known constructions are the Széchenyi Card, Új Magyarország Hitelgarancia and Garantiqa Hitelgarancia.

Providing loans with lower nominal amounts are usually uneconomical for banks thus they are reluctant to provide that for individual enterprises, especially for micro enterprises. However, it can be replaced by *loan programs coordinated by the state* (Országos Mikrohitel Program, Új Magyarország Mikrohitel Program), available for long term or short investments as well. Micro and small enterprises are targeted by the Új Magyarország Kisvállalkozói Hitelprogram while the 'Új Magyarország Kis- és Középvállalkozói Hitelprogram aims to support the whole spectrum the SME sector.

The state can support the SME sector through programs like GOP or JEREMIE which are financed from EU sources and are dedicated to well defined economic developments. These programs aim to support SME's R&D activity and the implementation of new IT and Quality management systems, among others. JEREMIE provides different financial constructions which were constructed specifically for SMEs ensuring them a better access to funding sources. The aim is to remedy the capital market's insufficient operation in respect of providing SMEs access to funding sources which hinder them in their developments (*KSH, 2011*).

**Current status of SME lending which led the NBH to act**

According to NBH's 'Trends in lending' research material loans outstanding in the corporate segment declined by 6.3% in Q1 2013 on a year on year basis. Based on the survey there has been no material change in corporate credit conditions which remained tough and is still dominated by non-price conditions. Moreover, participants do not expect any easing in that respect in the short run. At the same time that limited number of borrowers who has access can finance itself at lower costs as price conditions have improved as a result of base rate cuts over the last months. Accordingly the average interest rate on HUF loans declined below 8% in Q1 2013.

Persisting strict lending conditions had affected the SME sector especially disadvantageously which justified the National Bank's intervention. NBH's 'Funding for Growth Scheme' (*FGS*), launched in June, has been able to ease the SME sector's funding costs in a noteworthy manner through the refinancing scheme which goes with zero interest rate and through capping the risk premium on loans at 250 basis points. Lower funding costs improve the credit profile of enterprises and mitigate the risk of banks which could finally lead to the easing of non-pricing conditions. (*MNB, 2013*).

**The goal of the Funding for Growth Scheme of the NBH**

The National Bank of Hungary announced at the end of April that the Funding for Growth Scheme will be launched with the goal of the accelerating the economy and amending the employment thereby it offers loan with lower interest rates than available on the market (at the most 2,5%) to the corporations.

The goal of the Funding for Growth Scheme which was started on 1st June 2013 is to soften the troubles in financing of the SMEs, in the interest of strengthening the financial stability and reduction of the external vulnerability of the country.

Loans in the first pillar may reduce the financing costs of the corporations with existing loans or rather may make it available to implement that projects which were put off because of the high financing costs. As a result of the decreasing debt service charges the deterioration of the banks' portfolio quality will slow, so the program may amend the lending capability and willingness of the banks.

The second pillar of the program would like to reduce the share of the FX loans in the loan portfolio of SMEs. Most of the SMEs with loans in foreign currency don't have natural (through any income in foreign currency) or artificial (i.e. derivative positions) hedge so these corporations run FX risk. Transformation of the loans from foreign currency to forint loans will amend the creditability of corporations and ensure calculable operation. (*MNB*)

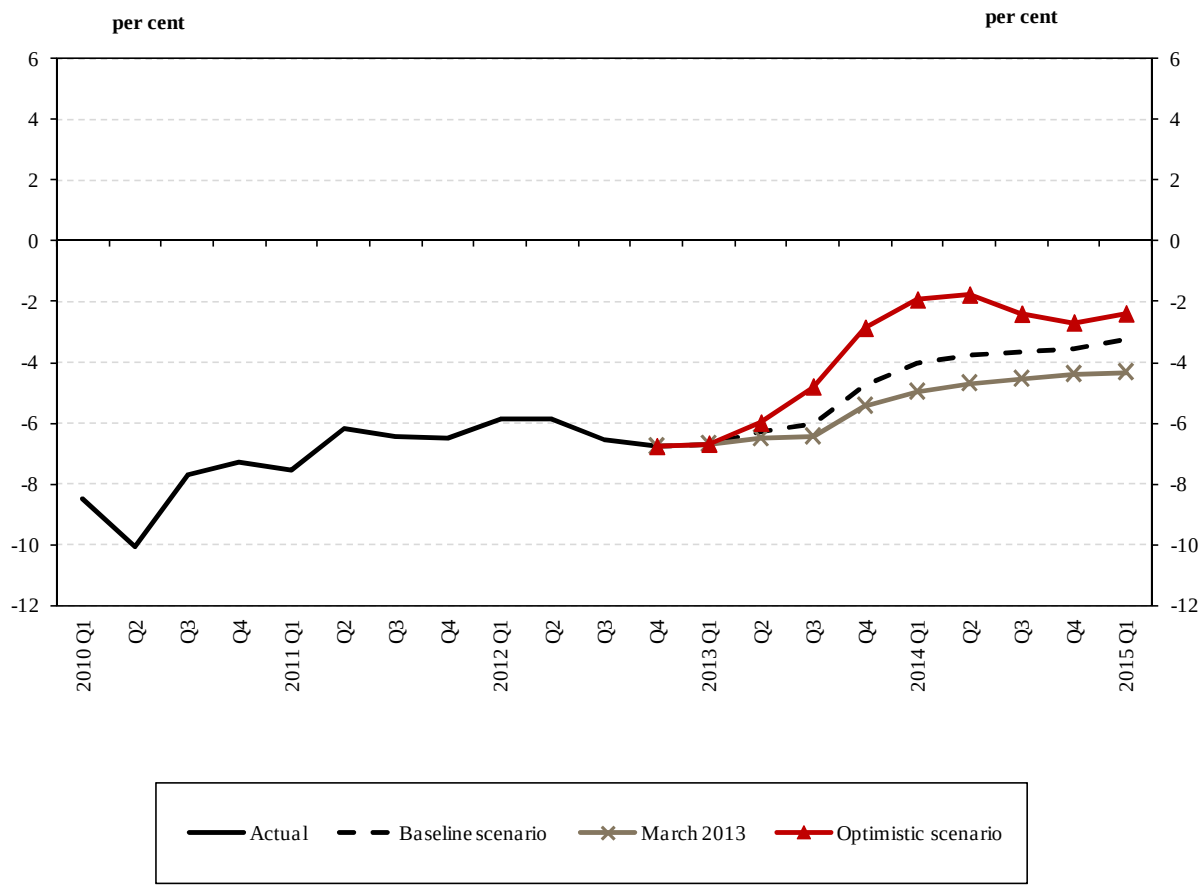
The first and second pillar was oversubscribed by 200% and 100%, respectively, so the Monetary Council of the NBH raised the pool of the first pillar to HUF 425 billion and the pool of the second pillar to HUF 325 billion. As a result in the first round of the program the corporations can apply for as much as HUF 750 billion.

Mr. György Matolcsy, president of the National Bank of Hungary said that 70% of all employees are employed by the 650k SMEs operating in Hungary, the sector produces 54% of the GDP, so the sector has crucial importance in the "growing revolution".

In the opinion of the NBH the program may raise the GDP with 0.2-0.5% till the end of 2014, but in optimistic case this uplift effect can as much as 1-1.8%.

As a result of the positive effects of FGS the NBH already projects an increase in SME lending as early as in the second half of 2014. In NBH's recent lending survey banks projected slight easing in their credit conditions in the corporate segment. A decrease in loan loss provisioning and the decline in corporate loan rates may have a positive impact on lending developments, however, in the short run it may be partly offset by the deterioration in economic prospects. The less favourable economic cycle has negative effect both on corporate credit demand and banks' credit supply. At the same time, the NBH's Funding for Growth Scheme may ease these downside risks, and thus the decline in total outstanding corporate loans may be relatively lower. Taking these contrasting effects into consideration, corporate lending is expected to remain week but still better compared to the March 2013 forecast *(Graph 6).*

In respect of SME loans, however, total outstanding amount is expected to grow in the forecast horizon as well. Nevertheless, developments in corporate lending activity heavily depend on the utilisation rate of the program, moreover, it will be also crucial which amount of real new loan will be raised at the end, notwithstanding the simple refinance of old banking loans with these new cheaper facilities (*MNB, 2013*).




**Graph 6: Forecast of lending to non-financial corporations (YoY changes)**

*Source*: Report on Financial stability, MNB (May, 2013)

## Market perception, critics and comments

In general one could say that the market perception of the program was relatively favourable as of the beginning. But the success of the program is not evident for everyone, some criticisms appeared in the press.

Most economists share the opinion that the HUF 500 million pool would not be enough to restart the economy, at the same time it would be a mistake as well if the program will be oversized since it can undermine the creditworthiness of NBH's interest rate policy.

Mr. György Surányi, former president of NBH said in an interview to Index that „measures show in the right direction, but it won't change the world". „If there will be demand for it and it will finance new investments, it can be expanded". In his opinion the final cost of these credit facilities should fit and be in connection with available risk free rate on the market. He expressed his concerns about the 2% interest rate which was originally planned since „it can be tempting to misuses". He added, that „if the program will finance new investments, the growth in economic performance and improvement in employment will compensate the central bank for its losses."

The deadline of the program is quite strict, 3 months may be scarce to work up new investment plans, therefore corporations will probably implement the already planned, but not yet started investments with the help of the program. The most feasible scenario is that the sector will use the first pillar of the program to refinance existing loans. The whole review of loans serving new investment goals is a longer process than simple refinancing existing loans, which have already been reviewed before. Moreover, it is very important for banks to keep the deadline because of a penalty interest has to be paid after the not used amount of their

pools. If banks will use the first pillar of the program simply to refinance the existing loans of their well-paying customers, the revolution in lending trends will fail. Furthermore, it will lead to lower interest margins, consequently it will be a loss for banks without improving their portfolio quality, this way the program won't be able to increase the GDP with the expected level, if at all.

Many experts say that it is already a success that banks are willing to lend money with so tight interest margins, but letting the portfolio grow, or at least stop the decline could be important for the banks as well. Finally, that amount of money which will remain at corporate as a result of lower interest rates could have an accelerating effect on the economy.

In some opinions only the first pillar of the program could contribute to the GDP growth. Though the second pillar may reduce the external indebtness of the economy, it is first of all a revenue transfer to the SME sector through this cheaper loan.

NBH is also aware of the fact that even the raised amount of pool is scarce in itself to restart lending activity or put the economy on a growing path and the first two pillars may be only enough to wake up the market. That's why it plans to motivate the banks to further lending with a third pillar of the program. After the evaluation of the first 3 months experiences it will turn out whether a new credit pool will be opened or some new measures should come.

**Potential impact of 'Funding for Growth Scheme' on the economy in light of figures**

The National Bank of Hungary expects huge results from the Program, at the same time the success is not evident for all the economists, as highlighted before. The aim of this chapter is to disclose what kind of conclusions can be formulated taking into account of the statistical relationships between the numbers.

The main goal of the Funding for Growth Scheme was the acceleration of the economy, namely the expansion of the GDP. The purpose of this statistical examination is to highlight and evaluate the potential effects of NBH's measures, reducing the funding costs of the corporations and expanding the new loan volume of the SMEs, on the performance of the economy.

**Methodology and row data**

In the national accounts the SME sector is not handled as a subsector thus they are not separated. For this reason their contribution to the GDP cannot be measured separately. However, in case of SMEs we can examine the potential effect of increasing loan volumes and lower interest rates on HUF denominated corporate loans through their impact on the so called Gross Value Added or GVA.

According to the Hungarian Central Statistical Office (HCSO) GVA is calculated in the following way: Output (at basic prices) – intermediate consumption (at market prices)

The next table *(Table 3)* contains the Gross Value Added figures of the national economy on aggregated level, highlighting the contribution of the whole corporate sector and within that that of the SME sector separately between 2003 and 2011. It can be declared that the corporate sector gave almost 2/3 of the whole Gross Value Added of the country, while SME sector gave almost 1/3 of that. It implies that the SME sector contributes roughly half of the Gross Value Added of the corporate sector's GVA. This fact confirms the important role of the SMEs in the Hungarian economy.

**Table 3: Gross Value Added between 2003 and 2011**

| Year | Gross Value Added, economy (million forint) | Gross Value Added, corporates (million forint) | Gross Value Added, SME (million forint) | Proportion of the corporates from the GVA of the economy | Proportion of the SME's from the GVA of the economy | Proportion of the SME's from the GVA of the corporates |
|---|---|---|---|---|---|---|
| ***2003*** | 16 049 458 | 8 770 733 | 4 706 221 | 54,65% | 29,32% | 53,66% |
| ***2004*** | 17 619 609 | 9 923 575 | 5 221 783 | 56,32% | 29,64% | 52,62% |
| ***2005*** | 18 893 483 | 10 699 025 | 5 563 725 | 56,63% | 29,45% | 52,00% |
| ***2006*** | 20 481 982 | 11 906 203 | 6 310 469 | 58,13% | 30,81% | 53,00% |
| ***2007*** | 21 391 332 | 12 673 025 | 7 100 100 | 59,24% | 33,19% | 56,03% |
| ***2008*** | 22 643 767 | 13 513 125 | 7 572 881 | 59,68% | 33,44% | 56,04% |
| ***2009*** | 21 660 871 | 12 739 670 | 7 104 899 | 58,81% | 32,80% | 55,77% |
| ***2010*** | 22 474 564 | 13 549 322 | 7 088 654 | 60,29% | 31,54% | 52,32% |
| ***2011*** | 23 678 903 | 14 559 680 | 7 422 294 | 61,49% | 31,35% | 50,98% |

*Source*: Own calculation based on KSH

In the following part I examined the impact of the new loan origination development in the SME sector as well as the development of the average annualised agreed rate of HUF loans to non-financial corporations on the SME sector's GVA figure (row data are in *Table 4*). The analysis of the relationships is made with correlation and regression calculation, with the help of the SPSS 20. statistical program.

**Table 4: Row data**

| *Year* | Gross Value Added, SME (million forint) | New loan volume, SME (million forint) | Average annualized agree rate |
|---|---|---|---|
| ***2003*** | 4 706 221 | 1 252 739 | 13,12% |
| ***2004*** | 5 221 783 | 1 026 638 | 12,14% |
| ***2005*** | 5 563 725 | 1 744 975 | 8,26% |
| ***2006*** | 6 310 469 | 1 704 628 | 9,89% |
| ***2007*** | 7 100 100 | 2 043 238 | 9,46% |
| ***2008*** | 7 572 881 | 2 383 442 | 12,47% |
| ***2009*** | 7 104 899 | 1 910 574 | 9,67% |
| ***2010*** | 7 088 654 | 2 254 911 | 8,48% |
| ***2011*** | 7 422 294 | 1 981 537 | 9,55% |

*Source*: Own calculation based on KSH and MNB

## Correlation calculation

In statistics, dependence refers to any statistical relationship between two random variables or two sets of data. Correlation refers to any of a broad class of statistical relationships involving dependence. Correlation relationship is the relationship of two quantitative variables. During correlation calculation we can declare the tendency and strength of the relationship between two variables.

In the followings it will be analyzed the tendency and strength of the relationship between (1) the Gross Value Added produced by the SME sector and the new outstanding loan volume in the SME sector as well as (2) the Gross Value Added produced by the SME sector and the average annualised agreed rate of HUF loans to non-financial corporations.
You can find the results in the next table:

**Table 5: Results of the correlation calculation**

| Correlations | | New SME volume | Average annualized agreed rates |
|---|---|---|---|
| Gross Value Added | Pearson Correlation | ,895 | -,383 |
| | Sig. (2-tailed) | ,001 | ,309 |
| | N | 9 | 9 |

*Source*: Own calculations, Result table of the SPSS 20. statistical program

The most familiar measure of dependence between two quantities is the Pearson product-moment correlation coefficient, or "Pearson's correlation." It is obtained by dividing the covariance of the two variables by the product of their standard deviations.

The value of the coefficient describes the strength, its signal describes the tendency of the relationship. In case of positive relationship there is linear relation between the variables, so if the value of one of the variables increases, the value of the other variable increases as well. Implicitly in case of negative relationship the variables are in inverse ratio to each other.

The crucial significant level can be defined. With a significance test we can determine the probability that the correlation is a real one and not a chance occurrence. By testing the correlation coefficients, we declare in the null hypothesis, that the coefficient is not significant, and in the alternative hypothesis we declare the inverse. The data in the table show the crucial significant level, when we accept the null hypothesis. If the significant level exceeds the given level in the table, we can reject the null hypothesis and accept the alternative one.

The N value in the last row means the number of the examined elements.

Abovementioned result of the correlation calculation can be summarized by the followings:

(1) There is a positive, strong relationship between the Gross Value Added produced by the SME sector and the new outstanding loan volume in the SME sector, which simply means if the new loan volume increases in the SME sector the Gross Value Added of the SME sector increases as well. The crucial significance level is 0.01%, so the coefficient is significant in almost every significance level.

(2) There is a negative, medium strength relationship between the Gross Value Added of the SME sector and the average annualised agreed rate of HUF loans to non-financial corporations. It means if the interest rate increases the Gross Value Added decreases. The crucial significance level is 30.9%, which means the coefficient is significant only on higher significance levels.

**Regression analysis**

Regression analysis is a statistical technique for estimating the relationships among variables. It includes many techniques for modelling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables. Regression analysis helps one to understand how changes the typical value of the dependent variable when any one of the independent variables is varied, while the other independent variables are held fixed.

The aim of the regression analysis is to describe the relationship of two quantitative variables with the help of a function.

The formula of the linear regression function is the following:

$$\check{Y} = \beta_0 + \beta_1 * X$$

where

- $\check{Y}$ is the dependent variable
- X is the independent variable,
- $\beta$ is the parameter or coefficient.

(1) First we analyse the regression relation between the Gross Value Added of the SMEs and the new loan volumes in the SME sector.

**Table 6: Model summary of the regression analysis (where the new loan volume of SMEs is the independent variable)***

| R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|
| ,895 | ,800 | ,772 | 501 644,167 |

** The independent variable is new loan volume of SMEs.*

*Source*: Own calculations, Result table of the SPSS 20. statistical program

The R SQUARE datum means the explanation power of the model; it is the $R^2$ index. The so-called determination coefficient represents what proportion of the variance of the dependent value is attributable to the independent value. This datum shows that the new loan volume of the SMEs explains the run of the Gross Value Added of the SME sector in 80%. The R index is the correlation coefficient. Its sign means the tendency; its absolute value means the strength of the relationship. The outcome is the same as we can see in the correlation calculation: we can declare that there is a positive, strong relationship between t Gross Value Added of the SMEs and the new loan volume available the SME sector.
The next table shows the value of the parameters of the function:

**Table 7: Parameters of the function (where the new loan volume of SMEs is the independent variable)**

| Coefficients | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| ***New loan volume of SME sector*** | 2,127 | ,402 | ,895 | 5,296 | ,001 |
| ***(Constant)*** | 2 601 841,350 | 746 444,893 | | 3,486 | ,010 |

*Source*: Own calculations, Result table of the SPSS 20. statistical program

The value of new loan volume of the SME sector in column B equals the $b_1$ parameter of the corresponding function while the Constant value represents the $b_0$ parameter.

So the formula of the function is:

$$\check{Y} = 2\ 601\ 841{,}35 + 2{,}127 * X$$

The $b_0$ parameter can't be translated because 0 is not a component of the set of the X values. The translation of the $b_1$ parameter is the following: If the new loan volume in the SME sector increases with 1 million forint, the Gross Value Added produced by the SMEs increases with

2,127 million forint. According to the significance level highlighted in the table the relation is significant.
(2) In the followings we analyse the regression relation between the Gross Value Added of the SMEs and the average annualised agreed rate of HUF loans to non-financial corporations.

**Table 8: Model summary of the regression analysis (where average annualized agreed rates of forint loans of the non financial corporations is the independent variable)***

| R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|
| ,383 | ,147 | ,025 | 1 036 839,204 |

**The independent variable is average annualized agreed rates of forint loans of the non financial corporations.*

*Source*: Own calculations, Result table of the SPSS 20. statistical program

One could see from the results that the table that the average annualised agreed rate of HUF loans to non-financial corporations explains the run of the Gross Value Added of the SME sector in 14.7%. So this relationship is much weaker than the other one.

Based on the table below we can score up the linear regression function:

$$\check{Y} = 8\ 790\ 980{,}033 - 226\ 008{,}107 * X$$

That means if the average annualized agreed rates grow with 1% the Gross Values Added produced by the SME sector decreases with 226008,107 million forint. This analysis also confirms that this relation is less significant.

**Table 9: Parameters of the function (where average annualized agreed rates of forint loans of the non financial corporations is the independent variable)**

| Coefficients | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| The average annualized agreed rates | -226 008,107 | 205 967,265 | -,383 | -1,097 | ,309 |
| (Constant) | 8 790 980,033 | 2 157 110,944 | | 4,075 | ,005 |

*Source*: Own calculations, Result table of the SPSS 20. statistical program

## Conclusions

It can be declared that SMEs play a significant role in the Hungarian economy. Beyond their huge number and their important role in the employment it is also confirmed by their noteworthy contribution to the aggregated Gross Value Added. The share of the SME sector is even higher in terms of their contribution to total net revenue of the corporate sector while their share in total export sales is around 25% as before.

In relation to the existing loan portfolio of the SMEs and their access to new funding sources I made the following conclusions:

(1) The outstanding loan portfolio of the SME sector is continuously contracting. The contraction is bigger than the average in case of longer term loans, especially at the FX denominated ones. The quality of the portfolio deteriorated further in 2011 and 2012.

(2) The contraction in credit supply is attributable to the deterioration of lending capacities. Demand side factors may have played a smaller role in the decline of corporate lending activity than supply side hurdles. Due to a negative shift in the banks' risk appetite, they typically tended to finance only the most creditworthy part of corporations.

(3) The strict non-price conditions of corporate lending did not change considerably, however, there were some easing in the price conditions as result of the base rate cuts of NBH.

(4) Persisting strict lending conditions affected the SME sector especially disadvantageously which justified the National Bank's intervention.

As a response for aforementioned phenomenon NBH launched the 'Funding for Growth Scheme' on 1st June 2013 with the goal of accelerating the economy and amending the employment. To achieve these goals FGS should stop the contraction in total outstanding loans in the corporate sector as well as to ease the strict lending conditions persisting for years.

The market perception of the program was basically favourable. Due to the oversubscription by corporations the available amount of the first two pillars was lifted to HUF 750 billion from original HUF 500 million. At the same time the success of the program is not evident for many economists. Many find it especially important and decisive from the program's success point of view which amount of real new loan will be pumped in the sector.

Based on my statistical calculations I can conclude the followings related to the main strategic goals of the program:

(1) The volume of new loans granted to the SME sector has a significant influence on the development of the sector's Gross Value Added.

(2) The level of average annualised agreed rate of HUF loans to non-financial corporations has much less significance on the development of SME sector's Gross Value Added.

The presented statistical calculations absolutely underpin both the negative and positive comments and critics made during the prior evaluation of the program. Basically the program has a good approach to the problems surrounding SME financing. At the same time the 'Funding for Growth Scheme' can have an accelerating effect on the Gross Value Added and through than on the whole economy if the sources of the program will finance new investments, at least in a major part, and it will not go for a simple refinancing of already existing loans. The lower interest rates on corporate loans could have a positive impact on pricing conditions supporting the lending activity from demand side, however, it has much lower impact compared to the new loan volumes.

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